After Sales Technical Documentation

COMPACT HANDSFREE UNIT PHF–5

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AMENDMENT RECORD SHEET

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COMPACT HANDFREE UNIT PHF–5

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Introduction

General

The PHF–5 is a compact handsfree unit for handportable telephones and it provides a possibility to use HF operation. The phone cannot be used as a handset but the PHF–5 can be upgraded with a handset and an antenna coupler. The hook off –signal is given to the phone when a handset is lifted from the hook. The PHF–5 has an internal speaker and external microphone.

Technical Summary

Operation

The PHF–5 can be powered by LCH–6 or LCM–1 rapid chargers to provide rapid charging for the phone also during a HF call. The LCH–8 tricle charger is not recommended for powering the PHF–5 because during a HF call there will be insufficient charging current available for the phone.

The phone is connected to the unit by a system connector. The cable length including the connector housing is 15 cm. The other connectors are d.c. jack (input from the charger), microphone connector and a handset connector. There is no RF connector or external speaker connector in the PHF–5.

The PHF–5 has an internal HF–speaker.

List of Modules

Name of Module:	Material Code:
HF speaker module DH–6	0200658
Assembly parts MPHF–5	0260677

Basic Specifications

Function:	Value:
Input voltage	5.5...11 V d.c. typical range is 6.5...7.5 V with LCH–6
Current consumption	60 mA typical average during HF call
Power source	LCH–6 or LCM–1 charger

Modes of Operation

Power Off

The module does not receive supply voltage from a charger to the d.c. connector. There are no voltages on the module.

Power on/Mute on

The d.c. voltage in the XEAR line is below 0.5 V. There is no audio input signal present. HF speaker amplifier and headset amplifier are muted. The current consumption is below 10 mA.

Power on/Mute off

The d.c. voltage in the XEAR line is above 1 V. If there is no handset connected or the handset is on hook, the XEAR signal is routed to the HF speaker and the HF microphone signal is routed to the XMIC line. If the handset is off hook, the XEAR signal is routed to the handset speaker and the handset microphone signal is passed to the XMIC line.

Modes of Audio Output Destination and Hook

The audio output is routed to handset connector if

- a handset is connected and it is lifted from the cradle
- a headset is connected
- a button headset is connected

Otherwise the audio output is routed to the internal speaker and HF microphone signal is routed to XMIC.

The hook off signal is passed to the phone if audio output is routed to external device. This means that whether a normal or a button headset is connected, the hook is also always off.

Switching Delay between Handset Mode to/from HF Mode

The internal logic for audio routing and hook signal includes a delay, which is to prevent erroneous behaviour of the whole system when switching between modes.

The hook signal for phone is given without any delay.

The audio routing is delayed for about 0.5 seconds, when the audio routing is to change from handset mode to HF mode. The delay is below 100 milliseconds, when the audio routing is to change from HF mode to handset mode.

External Signals and Connections

D.C. Supply Connector X100

Pin:	Signal name:	Function:
1	GND	Ground
2	VCC	Input from charger • min/max voltage: 5.5...10.8 V d.c. • min/typ/max current: 740...780...820 mA d.c. LCH–6 or LCM–1 • min current: 285 mA d.c. LCH–8, not recommended

System Connector X250 (and System Cable Connector X200)

Pin(X200)	Signal name:	Function:
1 (1)	GND	Digital ground
2 (6)	XMIC	Microphone signal • nominal voltage: 60 mV • Id resistor/PHF–5: 22 kΩ to GND • Id resistor/hook off: 22 kΩ to GND
3 (5)	SGND	Signal ground
5 (2)	V_IN	Charge output for phone, connected to VCC • HF call min/typ/max curr: 630...730...810 mA • mute on min/typ/max curr: 730...775...820 mA
6 (4)	XEAR	Speaker signal • typ/max voltage: 60...694 mV • mute on voltage: 0...0.5 V d.c. • mute off voltage: 1...1.6...2 V d.c.
12 (3)	HOOK	Hook off to phone • min/typ/max voltage: 0...0.2...0.4 V pulldown at hook off

HF Microphone Connector X300

Pin:	Signal name:	Function:
1	GND	Ground
2	HFMIC	Microphone signal • typical/max. voltage: 2...30 mV • min/typ/max. bias voltage: 2...3.2...4.4 V d.c. with load

Handset/Headset Connector X400

Pin:	Signal name:	Function:
1	GND	Ground
2	HMIC	Microphone signal • typical/max. voltage: 0.7...15 mV • min/typ/max. bias voltage: 2...3.2...4.4 V d.c.
3	HEAR	Speaker signal • min/typ/max. voltage: 0...60...600 mV with 100 Ω load

HF Speaker Connector X500

Pin:	Signal name:	Function:
1	Speaker +	Speaker positive signal
2	Speaker –	Speaker negative signal

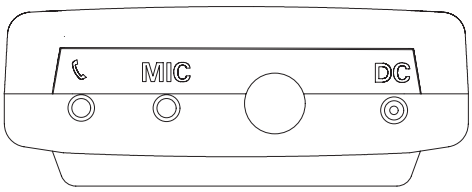
Circuit Description

The circuit blocks are described in these subsections. Refer to block diagram.

Connectors

There are 4 connectors to other units, and internal speaker connector. There are d.c. input, phone bottom connector, microphone and handset/headset connector.

The incoming d.c. voltage is routed directly to system connector VCC pin.



Input Protection

The purpose of the input protection is to prevent ESD, RF and high or negative input voltages to damage the module. Contacts that are subject to ESD are protected with diode pairs. All inputs (as well as test pads) are protected from RF. The RF shield metal plate (assembly part) is the physical interface subject to RF shielding.

CAP interface

This block converts signal levels and also provides single–ended to differential and level conversions as well as hook pulldown and device identification.

Audio In

The circuit performs differential to single–ended conversion of incoming audio signal. The function is: EAR = SGND–XEAR (Gain is 0 dB). Output d.c. bias in EAR line is 2 V, input is a.c. coupled, and the stage tolerates about ±1.5 V combined common mode + differential mode input swing without clipping.

Audio Out

The circuit performs sum operation with minimum phase shift. The function is: XMIC = SGND–MIC (Gain is 0 dB). Input d.c. bias in MIC line must be 2 V, output d.c. is not affected. The stage tolerates about ±1.5 V combined SGND and MIC line swing without clipping.

Device Identification

There is a 22 kΩ d.c. identification resistor connected from XMIC line to GND.

Hook

The circuit pulls HOOK line down when HOOKOFF line is high. The function is: HOOK = –HOOKOFF. There is no pullup in the module.

5 V Regulation

The charger voltage is used as the input voltage for the module, and this block regulates it to 5 V (named +5V in schematic). For low charger voltage input, the maximum drop is 0.5 V so the block is full operative for input voltages downto 5.5 V.

2 V and 4 V Regulation

This block re–regulates the 5 V voltage to high ripple rejection 4 V line (named VSTAB in schematic) and further to 2 V (named +2V in schematic). +2 V is used as half voltage for audio stages and VSTAB is used for microphone biasing and low level microphone amplifier supply voltage.

Speaker Amplifier

This block is s.c. coupled full bridge speaker output stage. It has own 2.4 V half voltage which is seen at both outputs SP+ and SP–. The output swing is 3 V_{RMS} and expected load is 15 ohms. It is possible to use a 8 Ω speaker, too,

but this doubles the power consumption and temperature rise of the IC and therefore it might reduce lifetime. The amplifier is on when HFMUTE is off (below 2.4 V).

Headset Capsule Amplifier

This block is a current booster block that doubles the EAR input voltage but has significant output impedance together with input protection block (100 Ω). The load of the handset is also 100 Ω, so the actual gain is 0 dB for handset. A headset with 32 Ω load impedance gets therefore less power, and the gain is –6 dB. This matches the amplifier output for either device plugged in the handset connector. Maximum output voltages are 550 mV_{RMS} for handset and 225 mV_{RMS} for headset, seen at the handset connector with 110 Ω and 32 Ω loads, respectively. The amplifier is on when HSMUTE is about 5 % below the +2 V line level. The amplifier is off when HSMUTE is below 0.7 V. Levels between these are forbidden (except level transients) and lead to distorted output.

HF Microphone Preamplifier

This block is used for high performance preamplifying of the HF microphone signal. The mic is biased from VSTAB in this block. VSTAB is also used as a supply voltage for the amplifier. The block is used also for level matching between the two mic inputs, as they have common amplifier/selector stage (Microphone amplifier). The gain is 10 dB, input impedance is 2 kΩ. The output d.c. voltage is around 0.6 V, but when tied to GND by microphone amplifier block, the amplifier is disabled.

Handset Microphone Preamplifier

This block is used for high performance preamplifying of the handset microphone signal. The mic is biased from VSTAB in this block. VSTAB is also used as a supply voltage for the amplifier. The block is used also for a.c. level matching between the two mic inputs, as they have common amplifier/selector stage (Microphone amplifier). The gain is 17 dB, input impedance is 2 kΩ. The output d.c. voltage is around 0.6 V.

Microphone Amplifier

This block is used as a microphone selector and is also postamplifies the signal providing the low output impedance MIC signal for the CAP interface block. The two mic inputs are a.c. coupled and the output (MIC line) is biased to 2 V. The EXTAUD line is used for input selection. When the EXTAUD is high, the HF microphone line is tied to GND, which disables the whole HF microphone preamplifier block increasing rejection in handset mode. When the EXTAUD is low, the handset microphone amplifier block is operative but it cannot have any signal.

The gain in this stage is 20 dB for both of the input signals.

Hookoff Sense

This block monitors the handset microphone current and provides HOOKOFF and EXTAUD signals. The current of the 2.2 kΩ bias resistor of the handset microphone preamplifier block is monitored (by monitoring voltage drop) and if the d.c. resistance of the handset microphone is less than about 50 kΩ, the HOOKOFF line is tied high (above 3 V), othervise low (below 0.1 V). The EXTAUD line is following the HOOKOFF line, with RC time constant of 470 milliseconds.

The 50 kΩ d.c. impedance in the handset microphone corresponds to about 80 mA. If a handsfree microphone is plugged to handset plug, the block will identify this as a handset or headset, and the audio output is shorted by the mono plug of the HF microphone.

Muting Logic

This block monitors the XEARP and EXTAUD lines, and gives the HFMUTE and HSMUTE signals, that switch the speaker and handset capsule amplifiers to correct modes. This block is extremely level–sensitive and it does not have simple ”0” or ”1” input or output signals.

The XEARP d.c. level is monitored, and if the d.c. is below 0.7 V, both outputs will be in mute state regardless of the EXTAUD state. If the XEARP d.c. is above 0.7 V, the circuit creates internal reference level of 0.5 V, and decision is made using the EXTAUD signal; if EXTAUD is above 0.5 V, the HSMUTE will be off, and HFMUTE will be on. If XEARP d.c. level is above 0.6 V and EXTAUD is below 0.5 V, then HFMUTE will be off and HSMUTE will be on.

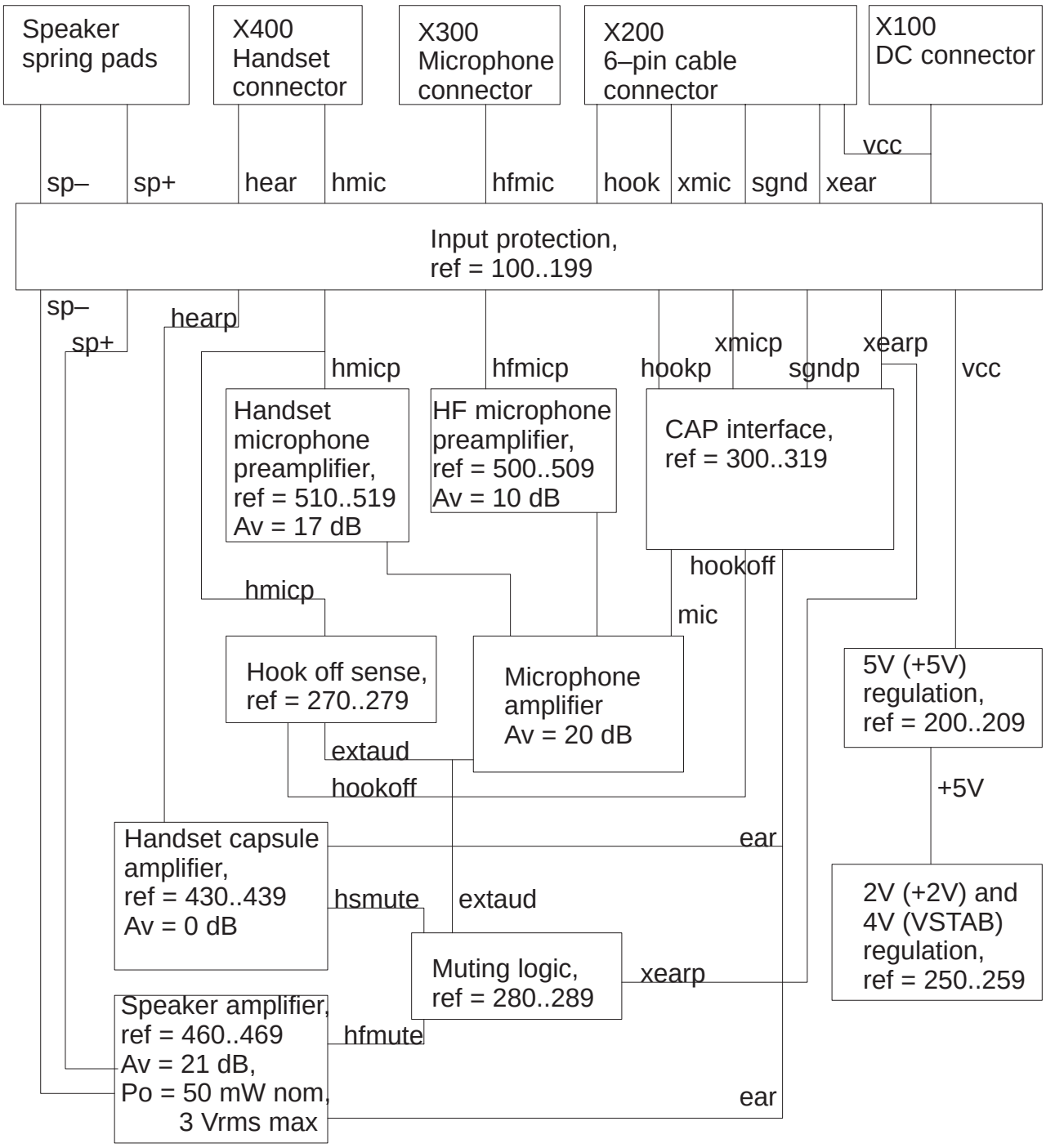
The HFMUTE signal on–level is above 3 V and off–level is below 0.7 V (When HFMUTE is on, the speaker amplifier is in shutdown).

The HSMUTE signal on–level is below 0.1 V and off–level is 5 % below +2 V line level. There is a RC time constant of 0.1 seconds when changing between these levels.

Power and Control Line Usage of Blocks

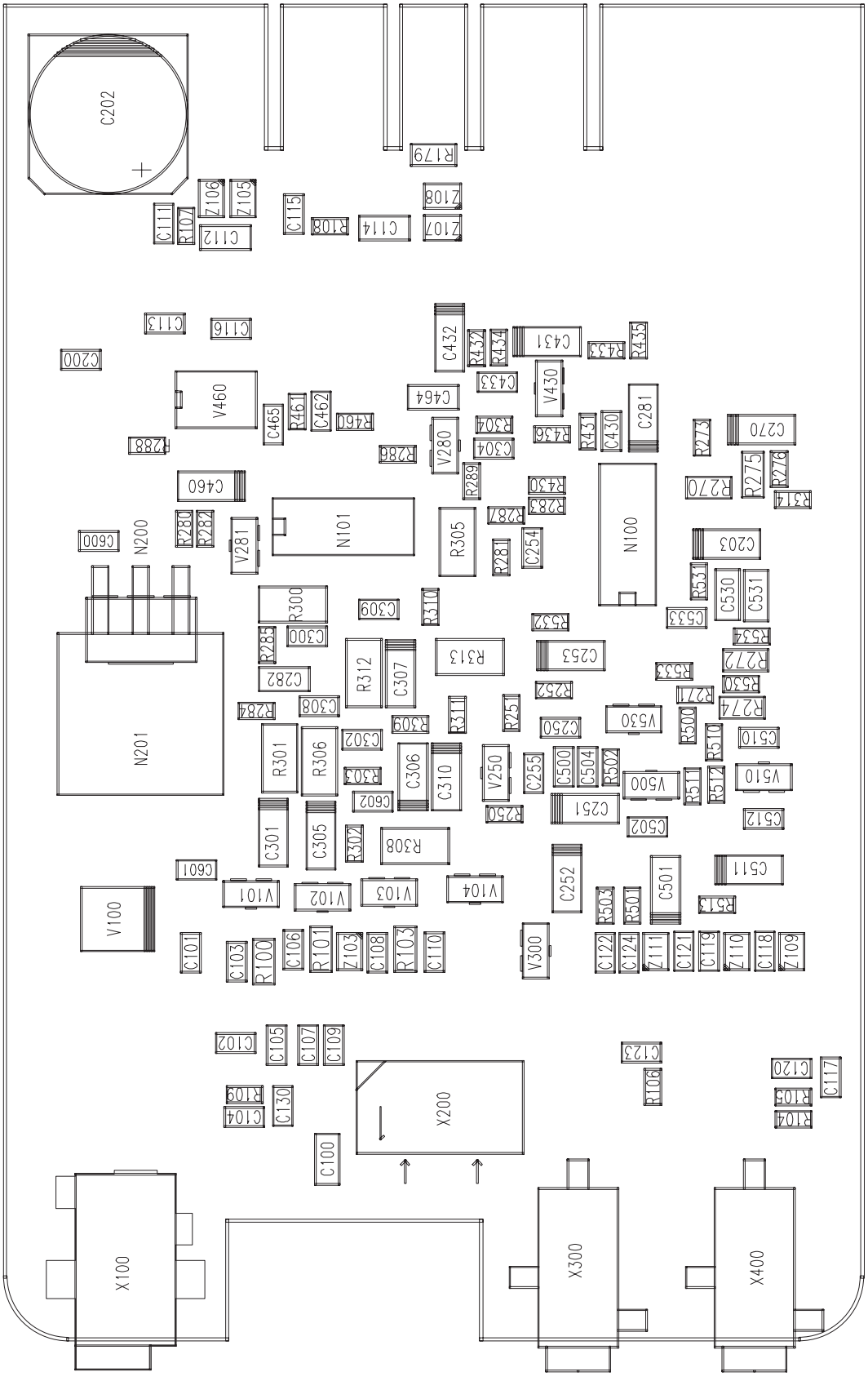
Block:	Power line:	Bias voltage:	Control lines:	Notes:
Input Protection	Diode pairs to VCC & GND	–	–	
CAP Interface	+5 V	+2 V	HOOKOFF	
5 V Regulation	VCC	–	–	Gives +5V line out
2 V and 4 V Regulation	+5 V	–	–	Gives VSTAB and +2V lines out
Speaker Amplifier	+5 V	internal biasing	HFMUTE	
Handset Capsule Amplifier	+5 V	+2 V	HFMUTE	
HF microphone preamplifier	VSTAB	VSTAB for mic, internal biasing	–	output pulldown will lead to shutdown
Handset microphone preamplifier	VSTAB	VSTAB for mic, internal biasing	–	output pulldown will lead to shutdown
Microphone Amplifier	+5 V	+2 V	EXTAUD	
Hookoff sense	+5 V	VSTAB	HMICP	Gives HOOKOFF and EXTAUD lines
Muting logic	+5 V	+2 V	XEARP, EXTAUD	Gives HFMUTE and HSMUTE lines

Block Diagram



Circuit Diagram of DH6 (Versio 12 Edit 148)

Layout Diagram of DH6 for layout version 12



Part List of DH6 (EDMS Issue 7.0 Code: 0200658))

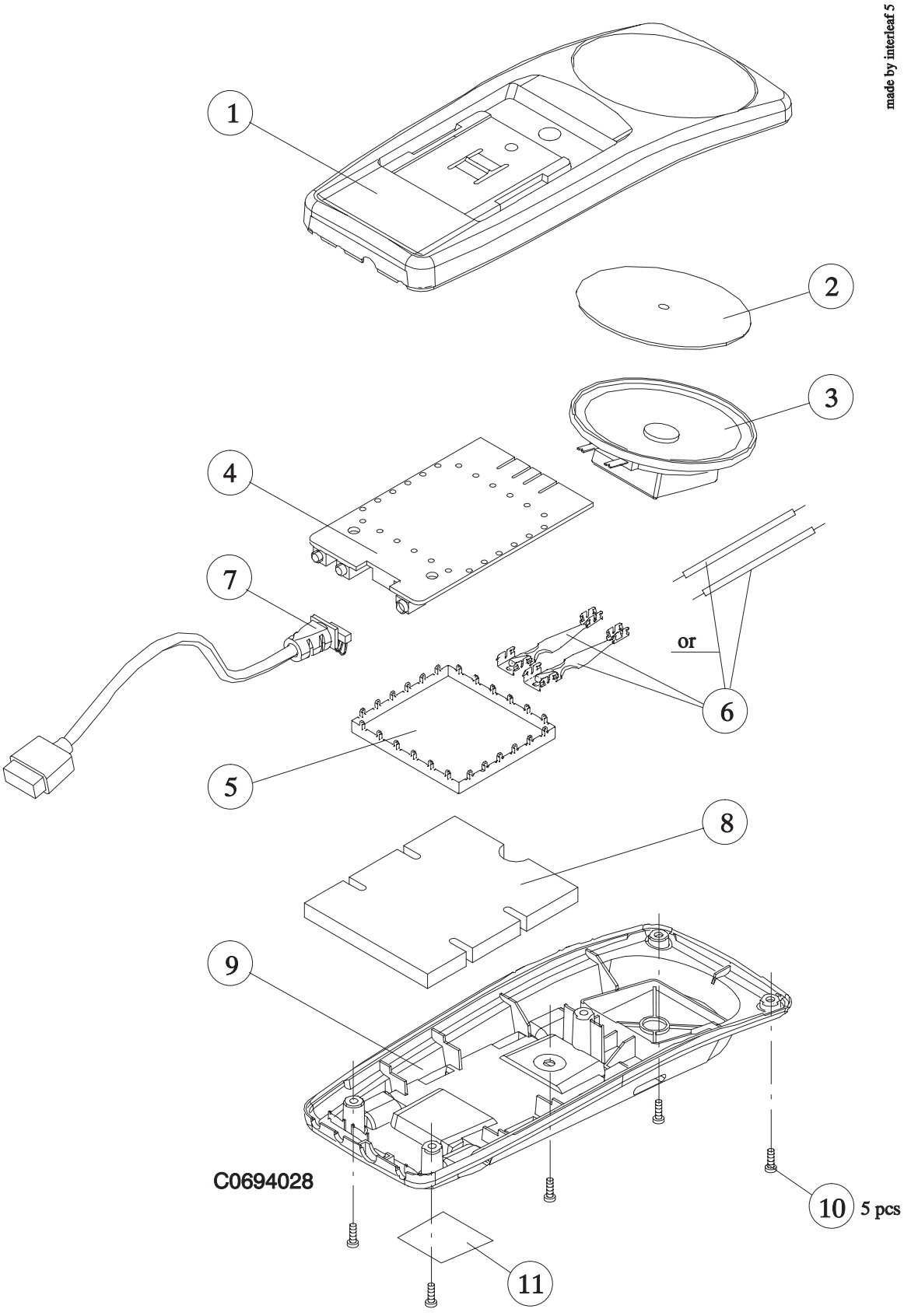
ITEM	CODE	DESCRIPTION	VALUE	TYPE
R100	1413836	Chip resistor	47	5 % 0.1 W 0805
R101	1413836	Chip resistor	47	5 % 0.1 W 0805
R103	1413836	Chip resistor	47	5 % 0.1 W 0805
R104	1430167	Chip resistor	47	5 % 0.063 W 0603
R105	1430167	Chip resistor	47	5 % 0.063 W 0603
R106	1430167	Chip resistor	47	5 % 0.063 W 0603
R107	1430151	Chip resistor	10	5 % 0.063 W 0603
R108	1430151	Chip resistor	10	5 % 0.063 W 0603
R109	1430053	Chip resistor	5.6 k	5 % 0.063 W 0603
R179	1413924	Chip resistor	220	5 % 0.1 W 0805
R250	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R251	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R252	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R270	1414536	Chip resistor	200 k	1 % 0.1 W 0805
R271	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R272	1414536	Chip resistor	200 k	1 % 0.1 W 0805
R273	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R274	1414536	Chip resistor	200 k	1 % 0.1 W 0805
R275	1414536	Chip resistor	200 k	1 % 0.1 W 0805
R276	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R280	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R281	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R282	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R283	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R284	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R285	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R286	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R287	1430095	Chip resistor	220 k	5 % 0.063 W 0603
R288	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R289	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R300	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R301	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R302	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R304	1430053	Chip resistor	5.6 k	5 % 0.063 W 0603
R305	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R306	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R308	1415939	Melf resistor	22.1 k	1 % 0.2 W 0204
R309	1430095	Chip resistor	220 k	5 % 0.063 W 0603
R310	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R311	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R312	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R313	1415696	Melf resistor	2.21 k	1 % 0.2 W 0204
R314	1430065	Chip resistor	10 k	5 % 0.063 W 0603

R430	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R431	1430095	Chip resistor	220 k	5 % 0.063 W 0603
R432	1430167	Chip resistor	47	5 % 0.063 W 0603
R433	1430167	Chip resistor	47	5 % 0.063 W 0603
R434	1430167	Chip resistor	47	5 % 0.063 W 0603
R435	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R436	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R460	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R461	1430091	Chip resistor	150 k	5 % 0.063 W 0603
R500	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R501	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R502	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R503	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R510	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R511	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R512	1430087	Chip resistor	100 k	5 % 0.063 W 0603
R513	1430065	Chip resistor	10 k	5 % 0.063 W 0603
R530	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R531	1430095	Chip resistor	220 k	5 % 0.063 W 0603
R532	1430043	Chip resistor	2.2 k	5 % 0.063 W 0603
R533	1430071	Chip resistor	22 k	5 % 0.063 W 0603
R534	1430095	Chip resistor	220 k	5 % 0.063 W 0603
C100	2310791	Ceramic cap.	33 n	20 % 50 V 0805
C101	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C102	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C103	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C104	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C105	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C106	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C107	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C108	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C109	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C110	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C111	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C112	2312208	Ceramic cap.	15 n	10 % 50 V 0805
C113	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C114	2312208	Ceramic cap.	15 n	10 % 50 V 0805
C115	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C116	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C117	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C118	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C119	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C120	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C121	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C122	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C123	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C124	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C130	2320077	Ceramic cap.	560 p	5 % 50 V 0603

C200	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C202	2517848	Electrol. cap.	220 u	20 % 16v8.5x8.5x10.5
C203	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C250	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C251	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C252	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C253	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C255	2320091	Ceramic cap.	2.2 n	5 % 50 V 0603
C270	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C281	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C282	2310791	Ceramic cap.	33 n	20 % 50 V 0805
C300	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C301	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C304	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C305	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C306	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C307	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C308	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C309	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C310	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C430	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C431	2611668	Tantalum cap.	4.7 u	20 % 10 V 3.2x1.6x1.6
C432	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C433	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C460	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C462	2320071	Ceramic cap.	330 p	5 % 50 V 0603
C464	2312208	Ceramic cap.	15 n	10 % 50 V 0805
C465	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C500	2320071	Ceramic cap.	330 p	5 % 50 V 0603
C501	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C502	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C504	2320071	Ceramic cap.	330 p	5 % 50 V 0603
C510	2320071	Ceramic cap.	330 p	5 % 50 V 0603
C511	2604209	Tantalum cap.	1.0 u	20 % 16 V 3.2x1.6x1.6
C512	2320063	Ceramic cap.	150 p	5 % 50 V 0603
C530	2310791	Ceramic cap.	33 n	20 % 50 V 0805
C531	2310791	Ceramic cap.	33 n	20 % 50 V 0805
C533	2320063	Ceramic cap.	150 p	5 % 50 V 0603
Z103	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z105	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z106	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z107	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z108	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z109	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z110	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
Z111	3640011	Filt z>600r/100m 0r6max 0.2a 0805		0805
V100	4113828	Trans. supr.	SMBJ28A	DO214AA
V101	4100285	Diode x 2	BAV99	70 V 200 mA SER.SOT23

V102	4100285	Diode x 2	BAV99	70 V 200 mA SER.SOT23
V103	4100285	Diode x 2	BAV99	70 V 200 mA SER.SOT23
V104	4100285	Diode x 2	BAV99	70 V 200 mA SER.SOT23
V250	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V280	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V281	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V300	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V430	4200909	Transistor	BC858B/BCW30	pnp 30 V 100 mA SOT23
V460	4340303	IC, af amp 0.5w 2.7–5.5v so	LM4861	SO8S
V500	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V510	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
V530	4200917	Transistor	BC848B/BCW32	npn 30 V 100 mA SOT23
N100	4301182	IC, 2 x op.amp.	LM2902	SO14S
N101	4301182	IC, 2 x op.amp.	LM2902	SO14S
N200	4340065	Mic5201 regld 5v 0.2a 1% sot223		SOT223
X100	5409003	SM, jack 3.0mm f dc 9v 1a		
X200	5409015	Pin header 1x6 p1.5 0r02 1a 50v		
X300	5400017	Jack 2.5mm stereo sm		SMD
X400	5400017	Jack 2.5mm stereo sm		SMD
	9854073	PCB DH6 83X54X1.6 D 4/PA		
	9854073	PC board	DH6	83x54x1.6 d 4/pa

Exploded View



Assembly Parts

ITEM	Q'TY	CODE	DESCRIPTION	VALUE, TYPE
1		9450571	Front cover	DMD00055
2		9480214	Dust shield	DMD00068
3		5140013	Loudspeaker 1W 15R	D64MM H19MM
4		0200658	HF speaker module	
5		9510259	RF shield	DMD00052
6 or	2	710F000	Connectin wires	
6	2	9510260	Connecting spring	DMD00051
7		9780145	Compact HF cable	4C 24532
8		9480212	Acoustic foam	DMD00067
9		9450570	Back cover	DMD00054
10	5	6291928	PT screw KB25X7	WN1412 FeZn blk
11		9380154	Label blank	4D22419 23.8X17.5

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